Making the Last Mile in Reaching the Users

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When we talk about the users of forecasting information, we often think of them last and we often talk about "them" separately and distinctly. We may conceptualize "the users" as "communities" with less knowledge about flooding or other climate and hazard risks. If we separate ourselves from the "users" then we neglect the intent of scientific research, modeling, and data collection: the intent to reduce hazard risks for people. We also forget that we are "users" as part of the various communities where we work and interact. As we change our conceptualization of whom we recognize as users, we begin to engage in the process of risk reduction that becomes a journey together in making the last mile: *preventing disaster*.

Even though the concentration of this workshop is on flood forecasting, by using an "all hazards" risk management approach we can take advantage of technologies and mitigation actions that have multiple benefits for risk reduction. More importantly, the all hazards approach in addressing risk invites partnerships, interactions, and relationships among communities that are necessary for sustaining the process of long-term risk reduction.

The initial steps within the All Hazards Disaster Risk Management approach include conducting a risk and vulnerability assessment. We need to understand the hazards that threaten us, not only in terms of historical records and technical studies but also with an evaluation of changes in land use, building, and development. We need to identify critical facilities and lifelines that would result in catastrophe, such as the loss of emergency operations centers, police, fire, and first responders, major roadways and transportation arteries, harbors and ports, airports, hospitals, shelters, telecommunication systems, and utilities. We need to know the institutions and facilities that help us maintain a healthy quality of life, such as financial institutions, businesses critical to trade and commerce, environmental assets like wetlands, forests, and coral reef systems, community health, special needs, and elderly care centers, and government facilities. By assessing the information together---hazards in relation to critical facilities, lifelines, and assets---it is possible to develop strategies for mitigating hazards, strengthening protection, improving policies and management activities, and making better, informed decisions.

There are many different ways to capture the data needed for a risk and vulnerability assessment ranging from the use of highly technical mapping and modeling tools to lower technology methods. On the low-tech end, where no digital mapping software or images are available, assessments methods can include the use of paper maps, lists, and community consultations. As different tools become available, they simplify the ability to store and organize information and help to communicate the information visually, which can be very effective in gaining support from policy makers.

The use of participatory methods in developing the risk and vulnerability assessment (RVA) builds a richness of information and ultimately strengthens hazard mitigation plans and disaster management. The "users" include agencies, institutions, organizations, researchers, first responders, planners, environmental and community groups, and a broad array of people with an interest and stake in the risk reduction plans. Examples will be shared from the planning processes in Kauai County, Hawaii, USA and from various Pacific Islands involved in climate risk management through regional risk assessment efforts. In addition, examples will be shared

about the importance of inclusion in terms of gender, class, race, ethnicity, and culture in planning processes where recent disasters demonstrate the ramifications of exclusion.

Based on lessons learned from numerous studies and experiences in risk reduction, the risk and vulnerability assessments establish a process for disaster risk management. The development of information and plans builds coordinating mechanisms among agencies, organizations, and communities involved in the process. Better baseline information gets developed and incorporated into new technologies. The RVA helps to manage critical data so that it does not become lost with institutional and staffing changes. The more open and participatory the process, the more it incorporates multiple needs and perspectives, and this results in accountability and implementation. The process provides a trusted network that ensures sustainability of mitigation planning and implementation.